[1]UMIT - University for Health Sciences, Medical Informatics and Technology; Oncotyrol - Center for Personalized Cancer Medicine, Hall i.T.;Innsbruck, Tyrol, Austria, [2]Department of Public Health and Health Technology Assessment, UMIT - University for Health Sciences, Hall, Austria, [3]Department of Public Health and Health Technology Assessment, UMIT - University for Health Sciences, Hall i.T., Austria, [4]University of Toronto, Toronto, ON, Canada, [5]Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada, [6]UMIT/ Oncotyrol/ Harvard University, Hall i.T.;Innsbruck, Tyrol, Austria

OBJECTIVES: Breast cancer is the most common malignant disease in Western women. In the ONCOTYROL research center, a decision-analytic Breast Cancer Outcomes & Policy (BCOP) model is being developed to evaluate the cost-effectiveness of the new 21-gene assay that supports personalized decisions on adjuvant chemotherapy. Model validation is essential to build confidence in the model results and to influence decision makers. Based on the new ISPOR-SMDM best practice recommendations, the process of model validation will be presented. **METHODS:** The 21-gene assay was evaluated by simulating a hypothetical cohort of 50year old women over a lifetime time horizon, adopting a societal perspective. Main model outcomes were life-years gained, quality-adjusted life-years (QALYs) gained and costs. The major focus of the presentation is on cross validation, i.e. the comparison of modeling results between the discrete event simulation (DES) BCOP-model and the Markov model of the THETA (Toronto Health Economics and Technology Assessment) Collaborative. Therefore, the BCOP-model has been populated with the Canadian parameters of the THETA-model. **RESULTS:** Cross validation started with comparison of model parameters related to the natural history of the disease (undiscounted life years, number of breast cancer recurrences/deaths). Thereafter, quality of life and cost outcomes were compared. The comparison included point estimates of the outcomes of the deterministic analysis of the Markov model as well as the probabilistic run with the DES results and combination (ICERs). The absolute differences of expected life years gained for women after surgery ranged from -0.35 to 0.43 years depending on the treatment strategy for specific risk groups. For the probabilistic analysis, confidence intervals as well as distributions of model outcomes were compared. **CONCLUSIONS:** Cross model validation is a suitable approach to identify and correct modeling errors and to explain remaining differences of modeling results.

PRM17

COST-UTILITY ANALYSIS OF DONEPEZIL FOR THE TREATMENT OF ALZHEIMER'S DISEASE IN THAILAND

Permsuwan U[1], Niwatananun W[1], Pimkrai A[2]
[1]Chiang Mai University, Chiang Mai, Thailand, [2]Chiang Mai Neurological Hospital, Chiang Mai, Thailand

OBJECTIVES: Treatments for Alzheimer's disease (AD) have currently been proved for effectiveness but the selection needs to determine whether the clinical benefits justify their additional costs. This study aimed to evaluate the cost-effectiveness of donepezil treatment of mind to moderate AD compared with usual care in the perspective of provider and society. **METHODS:** A Markov model composed of 4 health states (mild, moderate, severe, and death) was constructed to extrapolate the results over a 5-year period. The study included costs of donepezil, costs of comorbidity treatment, and costs of informal care. Effectiveness was measured in terms of quality-adjusted life year (QALY). Cost and utility data were directly collected from Thai AD population, but transition probabilities and the effect of donepezil were derived from literature review. All costs and effects were discounted at 3% per annum. One-way and probabilistic sensitivity analyses were performed. **RESULTS:** The results demonstrated that with the threshold level of Thai 1GPD per capita (approximately 148,000 Baht/QALY in 2011), donepezil was not a cost-effective treatment for mild or moderate AD for both societal (incremental cost-effectiveness ratio (ICER) = 284,473 Baht/QALY) and provider perspectives (ICER = 369,148 Baht/QALY). The results were very sensitive to utility value and the effect of donepezil. Donepezil became more cost-effective than usual care when the willingness to pay level increased to at least 155,000 and 375,000 Baht/QALY for societal and provider perspectives respectively. **CONCLUSIONS:** With a limited health care resources, using donepezil for the treatment of AD might not be cost-effective in Thai context.

PRM18

MODELING LONG-TERM HEALTH OUTCOMES IN CHRONIC KIDNEY DISEASE

Levy AR[1], Johnston K[1], Sullivan SD[2], Schnitzler M[3], Sood V[4], Agnese W[4], Osenenko KM[5], Perkins RM[6]
[1]Oxford Outcomes, Vancouver, BC, Canada, [2]University of Washington, Seattle, WA, USA, [3]St. Louis University, St. Louis, MO, USA, [4]Mitsubishi Tanabe Pharma America, Inc., Warren, NJ, USA, [5]Oxford Outcomes, Vancouver, BC, Canada, [6]Geisinger Medical Center, Danville, PA, USA

OBJECTIVES: Chronic kidney disease (CKD) is a common and growing global health issue characterized by reduced glomerular filtration rate (GFR, mLs/min/1.73m^2). While investigators have used short-term changes in GFR as an endpoint, the relationship between this endpoint and long-term outcomes has not been reported. The objective here was to estimate and quantify this relationship in order to predict the timing and number of cases of end-stage renal disease (ESRD) occurring over the lifetime of a cohort of hypothetical CKD patients with moderate and advanced disease. **METHODS:** We constructed a three-state Markov model (functioning kidney, ESRD, and death) with an annual cycle length to project GFR on long-term health outcomes. Using published GFR-specific risk equations, and adjusting for confounders, we estimated the probability of ESRD (assumed at GFR <10) and time to death according to baseline GFR categories defined by the United States (U.S.) Kidney Disease Outcomes Quality Initiative. Included in the modeling was a term representing two types of CKD patients characterized by "slow" and "fast" progression. **RESULTS:** For CKD patients aged 55 years, projected lifetime probabilities of progressing to ESRD were: 0.05, 0.25, 0.81, and 0.97 in GFR categories 45-59, 30-44, 15-29, and <15, respectively. Projected mean survival times were: 16.7, 13.7, 11.4, and 9.4 years for the same GFR categories. The model was calibrated with mortality data reported by the U.S. Renal Data System. **CONCLUSIONS:** The model can project the potential impact of baseline GFR on long-term outcomes in CKD. Estimating the time spent in GFR categories allows quantification of the entire trajectory of CKD until renal failure or death. In future, the model may be refined by incorporating additional empirical data describing longer-term follow-up.

PRM19

USING PANEL DATA TO INFORM ECONOMIC EVALUATION

Church J[1], Norman R[2], Goodall S[1], Reeve R[1]
[1]University of Technology, Sydney, Broadway, NSW, Australia, [2]University of Technology, Sydney, Australia

OBJECTIVES: To demonstrate if a nationally representative panel dataset can be used to evaluate if quality of life (QoL) impacts are associated with changes in body mass index (BMI). The aim was to estimate the utility increments (or decrements) associated with weight loss (or gain) for application in economic evaluations of obesity interventions. **METHODS:** Data from the Household, Income and Labour Dynamics in Australia survey (HILDA) was used in the analysis. HILDA is a household-based panel with 17,209 individuals from 6,987 households collected annually since 2001. This survey uses the SF-36 and the transformed SF-6D utility weight to capture quality of life. Currently, there are 5 waves providing information on BMI. The panel nature of the data was exploited with econometric techniques to show the effect of changes in BMI (between different BMI classification groups) on quality of life. **RESULTS:** The results demonstrated that being under-weight, over-weight or obese is associated with reduced quality of life. When adjusting for other explanatory variables, only the association between the obese category and diminished quality of life remained. The results from the panel data identified that only those who remain severely obese over time experience significant reductions in quality of life. Movements between other BMI categories were not associated with significant impacts on quality of life. **CONCLUSIONS:** Economic models that assess the cost-effectiveness of obesity interventions using cross-sectional data may overestimate the QoL gain following a reduction in BMI. This could lead to non-optimal policy oriented decisions. Population panel datasets may provide a better estimate. Using econometric techniques alongside traditional cost-effectiveness models offers a richer avenue of obtaining model inputs and more certainty in regards to quantifying gains and losses in QoL.

PRM20

CONSTRUCTION OF THE MARKOV MODEL FOR HEPATITIS B VIRUS RELATED DISEASES IN JAPAN

Yoda T, Yoshioka A, Suzue T, Hirao T
Faculty of Medicine, Kagawa University, Kita-gun, Kagawa, Japan

OBJECTIVES: Hepatitis B virus (HBV) is estimated to infect 350 million people all over the world. Most infection with HBV do not induce clinical liver disease, while less than 30% of them develop severe liver disease. We do not know, however, the approximate number of the annual newly HBV infection and/or HBV development in Japan. Then, we make Markov model with HBV infection and estimate annual probability to disease development. **METHODS:** We reviewed clinical research paper related to HBV infection published in Japan until December 2011. To research Japanese original data, we used 'Igaku Chuo Zasshi' (Japanese medical journals database), and Japanese Ministry of Health, Labour and Welfare research database. We then extracted some parameters (e.g., patients outcome, treatment, time horizon) and calculated annual probability of disease development. **RESULTS:** We made HBV infection model and estimate annual probability to disease development from 22 eligible Japanese research papers and reports. The HBV Markov model started from HBs antigen negative, then HBV infection, divided into 2 columns (asymptomatic career, acute hepatitis) and so on. Each columns annual probability were detected from clinical trial data in Japan. **CONCLUSIONS:** We estimated HBV infection and related diseases progress probability by one-year in Japan. We will estimate the cost of each diseases treatment, patient's quality of life, and then we will make Japanese HBV Markov model near future.

RESEARCH ON METHODS - Patient-Reported Outcomes Studies

PRM21

VALIDITY AND RELIABILITY OF THE 8-ITEM MORISKY MEDICATION ADHERENCE SCALE IN PATIENTS TAKING WARFARIN IN SINGAPORE

Wang Y[1], Kong MC[2], Ko Y[1]
[1]National University of Singapore, Singapore, Singapore, [2]Singapore General Hospital, Singapore, Singapore, Singapore

OBJECTIVES: A reliable and valid measure is essential to evaluating and enhancing patient medication adherence. There is no validated patient-reported medication adherence measure in Singapore. This study aimed to validate the 8-item Morisky Medication Adherence Scale (MMAS) in patients taking warfarin in Singapore. **METHODS:** A cross-sectional survey was conducted in a convenient sample of 174 patients taking warfarin at an anticoagulation clinic in Singapore in 2011. Sociodemographics and International Normalized Ratio (INR) values were obtained from patient interview and hospital databases. Respondents completed the MMAS in English or Chinese depending on their preference. The scale scores ranged from 0 to 8, with higher scores indicating better medication adherence. Reliability was assessed using Cronbach's alpha. Criterion-related validity was examined by relating the MMAS score to warfarin refill rate. Construct validity was examined via factor analysis and hypothesis testing. **RESULTS:** The reliability of the MMAS was moderate (Cronbach's alpha = 0.56). The scale scores were associated with warfarin refill rates ($p = 0.02$). Confirmatory factor analysis showed that the eight items